

WHAT IS CLAIMED IS:

1. A current sensing structure for a power semiconductor device, said semiconductor device having at least one power electrode and a control electrode; said power electrode connected to an elongated conductive terminal electrode, said current sensing structure including a printed circuit board having a control circuit thereon which is connected to said control electrode to control current flow in said power semiconductor device; said printed circuit board being spaced from said semiconductor device; said printed circuit board having an edge portion; said printed circuit board having an edge portion; said printed circuit board having a magnetic field responsive transducer thereon disposed adjacent said edge portion, said transducer producing an output signal which is related to a magnetic field which is intercepted by said transducer; said elongated terminal conductor having a portion thereof which is disposed adjacent said edge portion and is at an angle greater than zero degrees with respect thereto, whereby the magnetic field produced by current through said elongated terminal conductor is intercepted by said magnetic field responsive transducer and produces an output therefrom which is related to the current in said elongated terminal conductor.

2. The structure of claim 1, wherein said transducer is a Hall sensor.

3. The structure of claim 2, wherein said elongated terminal conductor terminal is a rigid conductor.

4. The structure of claim 3, wherein said elongated terminal conductor is a flat relatively thin conductor.

5. The structure of claim 1, which further includes a flat elongated heat sink; said semiconductor device having a bottom electrode secured to said base; said printed circuit board being mounted atop said base and spaced therefrom and extending parallel thereto.

6. The structure of claim 5, wherein said elongated terminal conductor is a flat relatively thin conductor.

7. The structure of claim 6, wherein said elongated terminal conductor is an L-shaped bracket having its bottom surface mounted on said base.

8. The structure of claim 1, wherein said printed circuit board has an elongated slot therein; said edge comprising an interior edge of said slot; said elongated terminal conductor extending through said slot.

9. The structure of claim 3, wherein said elongated terminal conductor extends perpendicular to the plane of said printed circuit board.

10. The structure of claim 7, wherein said elongated terminal conductor is a rigid conductor.

11. The structure of claim 1, which further includes at least one magnetic body disposed adjacent said transducer and in line with the magnetic field path of said elongated terminal conductor to increase the magnetic flux intercepted by said transducer.

12. The structure of claim 11, wherein said transducer is a Hall sensor.

13. The structure of claim 12, wherein said elongated terminal conductor is a flat relatively thin conductor.

14. The structure of claim 13, which further includes a flat elongated heat sink; said semiconductor device having a bottom electrode secured to said base; said printed circuit board being mounted atop said base and spaced therefrom and extending parallel thereto.

15. The structure of claim 14, wherein said printed circuit board has an elongated slot therein; said edge comprising an interior edge of said slot; said elongated terminal conductor extending through said slot.

16. A current sense structure for sensing the current in an elongated conductor; said current sense structure comprising a printed circuit board having an edge portion; a magnetic field transducer mounted on the surface of said printed circuit board and adjacent said edge portion; said elongated current conductor being disposed adjacent said edge portion and said current sensor and extending generally perpendicular to said printed circuit device; whereby the magnetic field created by current in said conductor circulated said transducer to induce an output therefrom related to the current in said conductor.

17. The structure of claim 16, wherein said transducer is a Hall sensor.

18. The structure of claim 16, wherein said printed circuit board has an elongated slot therein; said edge portion comprising an edge of said slot; said elongated conductor extending through said slot.

19. The structure of claim 16, which further includes at least one magnetic body disposed adjacent said transducer and in line with the magnetic field of said elongated conductor to increase the magnetic flux intercepted by said transducer.

Concluded
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